

Temporary Thermocouple Attachment for Thermal/Vacuum Testing at Non-Extreme Temperatures –
Test Results

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Post-test examination and data analysis that followed a two week long vacuum test showed that numerous self-stick thermocouples became detached from the test article. The thermocouples were reattached with thermally conductive epoxy and the test was repeated to obtain the required data.

Because the thermocouple detachment resulted in significant expense and rework, it was decided to investigate the temporary attachment methods used around NASA and to perform a test to assess their efficacy.

The present work describes the testing that was performed in early and mid-2017. The test article and the temporary thermocouple attachment methods tested are described. During the first test, fully half of the thermocouples detached – although the detachment showed subtly in the data for some. The second test was performed to confirm the data from the first test and to investigate the effect of test article and thermocouple grounding. The results of the testing over temperatures ranging from -150 to 200°F are detailed and preliminary recommendations are made for temporary thermocouple attachment methods.